STANDARD FORM NO. 64

CONFIDENTIAL

Office Memorandum · UNITED STATES GOVERNMENT

TO : The Files

DATE: 27 February 1957

FROM : [redacted] 25X1

SUBJECT: Trip Report Contract RD-107, Task Order 3, [redacted] 25X1

1. On 19 February 1957, a meeting was held at [redacted] 25X1
[redacted] to discuss progress on the subject contract. Present at the meeting were: 25X1

[redacted] 25X1

2. The remaining ferrite antennas constructed under Phase A were completed in December but not shipped because there were no shipping instructions given in the contract. Shipping instructions have been received and the remaining antennas will be shipped before the end of February. The final report under Task Order #4 on the very low frequency antennas has been completed and stenciled. Ten copies of the final report should be mailed before the end of February. The status of the various [redacted] task orders is as follows: 25X1

Task Order	Contract Price	Cost thr.31 Jan.	Expiration Date
1	$94,502	$30,621	June 30, 1957
2	$61,545	$30,343	June 11, 1957
3	$43,824	$27,174	Feb. 11, 1957
4	$19,961	$18,032	Oct. 23, 1957

3. Pages 2 through 7 of the first quarterly report analytically compare a ferrite antenna with an air core loop whose diameter is the same as the length of the ferrite rod. The report shows that when the antennas are loaded to give equal bandwidth, the signal to noise ratio of the ferrite antenna will always be worse than that of the air core antenna. This analysis has been confirmed by experience with the VHF and the VLF ferrite antennas. This inherent inferiority of ferrite antennas would not exist if the ferrite exhibited "Dispersion" as explained in the trip report of 19 December 1956 and page 14 of the first

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Quarterly Report. Effort since December has been aimed at obtaining dispersion in the permability, the dielectric constant, or the conductance. These efforts have not been successful because ferrite core loss increases when the ferrite begins to exhibit dispersion. It is not known whether this relation between dispersion and core loss is determined by some physical law or if some material could be found in which they do not go together. The program will be examined at the end of March and if it appears that the dispersion problem cannot be solved, the writer will recommend that the task order be terminated.

4. It now appears that ferrite antennas are not good miniature antennas in free space, but there is reason to believe that they will be better than other antennas [redacted] 25X1

[redacted] 25X1

[redacted] 25X1